

WHAT IS CLAIMED:

1. An inspection method for detecting a defect of a specimen by using an electron beam, said method comprising the step of:

deflecting said electron beam set at least 100nA beam current by taking a crossover as fulcrum.

2. An inspection method using an electron beam according to claim 1, further comprising the step of:

applying a retarding voltage for decelerating the electron beam to said specimen.

3. An inspection method using an electron beam according to claim 2 and further including changing the magnitude of said retarding voltage based on the nature of said specimen.

4. An inspection method using an electron beam according to claim 3, further comprising the steps of:

scanning said specimen by using said electron beam; and

detecting charged particles emanating from said specimen and converting said detected charged particles into an electrical signal.

5. An inspection method using an electron beam according to claim 4, further comprising the steps of:

storing picture information conveyed by said electrical signal;

comparing a picture with another by using said stored picture information; and detecting a defect of said specimen.

6. In inspection method using an electron beam according to claim 5, further comprising the step of:

continuously moving said specimen during said scanning.

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7. An inspection method using an electron beam according to claim 4 wherein there are generated a deflection electric field for deflecting said charged particles in predetermined direction and a deflection magnetic field for deflecting said charged particles in said direction as well as for canceling deflection of said electron beam by said deflection electric field.

8. An inspection method using an electron beam according to claim 4 wherein said charged particles are radiated to a secondary-electron generating substance to generate secondary electrons from said secondary-electron generating substance.

9. An inspection apparatus for detecting a defect of a specimen by using an electron beam, said apparatus comprising:

an electron source for drawing the electron beam set at least 100nA beam current;

a convergence lens for converging said electron beam so as to form a crossover between said convergence lens and said specimen; and

a deflector for deflecting said electron beam by taking a crossover as fulcrum.

10. An inspection apparatus using an electron beam according to claim 9, further comprising:

a detector for detecting charged particles emanating from said specimen and converting said detected charged particles into an electrical signal.

11. An inspection apparatus using an electron beam according to claim 10, further comprising:

a stage means for storing picture information conveyed by said electrical signal; and

a comparator for comparing pictures by using said picture information.

12. An inspection apparatus using an electron beam according to claim 10, further comprising an electron beam deflector for generating a deflection electric field for

deflecting said charged particles in a predetermined direction and a deflection magnetic field for deflecting said charged particles in said direction as well as for canceling deflection of said electron beam by said deflection electric field.

13. An inspection apparatus using an electron beam according to claim 10 wherein said charged particles are radiated to a secondary-electron generating substance employed therein to generate secondary electrons from said secondary-electron generating substance.

14. An inspection apparatus using an electron beam according to claim 9, further comprising:

a power supply applying a retarding voltage for decelerating the electron beam to the specimen.

15. An inspection apparatus using an electron beam according to claim 14, wherein said power supply applies a magnitude of said retarding voltage to said specimen based on the nature of said specimen.

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16. An inspection apparatus using an electron beam according to claim 15, wherein an electron set at a positive electric potential with respect to said deceleration voltage is provided between said specimen and said charged particle detector.